

4/2/96 A.2

Letter of Transmittal

BLACK & VEATCH Special Projects Corp.

101 North Wacker Drive, Suite 1100 /// Chicago, Illinois 60606 /// Phone (312) 346-3775 /// Fax (312) 346-4781

To: Sheri Bianchini
USEPA HSR-6J
77 W. Jackson
Chicago IL 60604

Date: 4/2/96
 From: Matt Mastromandi
 Project: ACS
 Project No.: TIG10
 File: C.3

We are sending you:

☒ Attached

Under separate cover via _____

☐ Preliminary Drawings

☐ Final Report

☐ Final Drawings

☐ Specifications

☐ Original Drawings

☐ Change Order

☐ Preliminary Report

☐ Addendum

☒ Other

Review Comments - Upper Aquifers + Trench Memos

Quantity:	Date:	Description:

These items are transmitted:

☐ As requested

☐ For your approval

☐ For bids due

US EPA RECORDS CENTER REGION 5



464738

☐ For your information

☒ For review and comment

Remarks:

Sheri:

Enclosed are the above review comments, including a disk copy. Please
call me with any questions.

Copy To:

S.R. Markvicka, R.H. Lantz

Signed:

Matt Mastromandi

Review Comments
Technical Brief
Proposal to Modify the Groundwater Extraction Trench
Perimeter Groundwater Collection System (PGCS)
American Chemical Services, Inc.
March 20, 1996

General Comments (based on Black and Veatch reviewer's discussion with Peter Vagt on 3/27)

General Comment No.1

The procedures used to evaluate the trench performances seem reasonable. However, the validity of the results will depend on the MODFLOW model used for the site. To save time and allow the project to progress at the expedited pace, a detailed review of the MODFLOW model documentation was not performed.

General Comment No. 2

The trench simulation is completed for a rough estimate and demonstration of the flow patterns on the north side of the plume. The model results given are gross estimates. The constant head boundary east of the firepond is critical to the migration of particles from the east side of the firepond to the trench (as shown on figures 3, 4, and 5), and should be justified.

General Comment No. 3

As Montgomery Watson discussed with the oversight contractor's reviewer, the conductance of 50 ft² per day is a mistake and should have been 100 ft² per day.

General Comment No. 4

In general, the model used to demonstrate the trench influence is a rough model that simulates a smaller area of a previous model. The constant head boundaries used are closer to the trench influenced area and may potentially influence simulation results. The 200 inch per year average recharge rate used at firepond is an estimate from previous modeling from surface water flow and storm water discharges. This rate can vary significantly with time and justification of the average recharge rate is very important.

General Comment No. 5

The model (according to Montgomery Watson) uses an average hydraulic conductivity of 12 ft/day for the entire aquifer. Slug test data indicated hydraulic conductivity increase from west to east. The higher hydraulic conductivity used to model the the western portion of the air can also potentially decrease the resistance of flow towards the trench from the east side and result in unrealistic flow paths towards the trench from farther zones.

Comment No. 1 Page 1, 4th paragraph

Modpath will show the path that a particle will flow from areas of elevated hydraulic head to areas of low head. How does this information predict the zone of capture for the contaminant plume?

Comment No. 2 Page 2, 3rd paragraph

What effects would be produced by a 4-foot drawdown?

Comment No. 3 Page 2, 4th paragraph

Why are the modeled contours different than the October 1995 contours? It appears to be a stretch to say that the comparison between the Modpath flowlines and the actual contaminant plume show the same general extent between the modeled and the actual extent of contamination. The problem, as stated on page 3, is that the flowlines do not represent the predicted (modeled) extent of contamination. Will a contaminant transport model be run?

Comment No. 4 Page 3, last paragraph

What were the additional trench configurations that were evaluated? How does the comparison between the modeled particle tracks and the actual extent of contamination indicate the trench configuration is sufficient?

Review Comments
Upper Aquifer Investigation Technical Memorandum, March 15, 1996
American Chemical Services, Inc.

Comment No. 1, page 1, 2nd paragraph

The boundaries of bulleted areas A,B,C, and D described in this paragraph are not clear. Present the boundaries of these areas on figure 1.

Comment No. 2, page 2, 3rd paragraph

Present the location of MW-9 on figure 1.

Comment No. 3, page 2, 4th paragraph

Provide the rationale for selecting the locations of the 8 "deep" groundwater samples described in this paragraph.

Comment No. 4, page 3, top of page

On figures, provide the locations of the UST and industrial facilities discussed in item 2 at the top of the page.

Comment No. 5, page 5, last paragraph; page 6, 1st paragraph

Delete these paragraphs. It is inappropriate to attribute acetone concentrations of 50 ug/l or less to natural processes or lab contamination. There is no evidence to suggest that natural processes have contributed to acetone concentrations detected. Lab contamination is an inadequate explanation for detected concentrations of acetone which were less than 50 ug/l because high concentrations of acetone were found upgradient of these samples. At the 45 sampling locations where acetone was detected, 28 locations had acetone concentrations well above 50 ug/l.

Comment No. 6, page 8, paragraphs 2, 3, and 4 (Conclusions)

Remove references to the UST and pipeline as potential sources of BETX contamination. There is not sufficient data to support that the UST and pipeline are contributing to BETX contamination.

Comment No. 7, page 8, last paragraphs (Conclusions)

Delete the paragraph. There is no basis for stating that VOC concentrations in area C are "not significant". It is inappropriate to attribute acetone to natural processes or lab contamination. (See comment 5). A more appropriate conclusion would include further study of this area, including quarterly monitoring well sampling of M-1S and MW-15.

Comment No. 8, page 10, Area A

An additional monitoring well is suggested approximately 100 feet southeast of the midpoint between MW-13 and M-5S. The distance between MW-13 and M-5S is over 1000 feet, and MW-14, the closest monitoring well between these wells, is contaminated. Hydropunch samples analyzed by a field GC can aid in the placement of monitoring wells; however they cannot reliably rule out the need for a monitoring well. Reliable long-term monitoring will require a well in the recommended location.

Comment No. 9, page 10, Area B

An additional monitoring well is suggested approximately 150 feet northeast of P-62, to provide adequate monitoring coverage of this area.

Comment No. 10, page 10, Area B

An additional monitoring well is suggested approximately 500 feet south of P-62, to better define the nature of contamination within this area.

Comment No. 11, page 10, Area C

No additional wells may be necessary for area C; however, wells MW-1S and MW15 should be added to quarterly monitoring to ensure adequate coverage of these areas. Delete the second sentence of this paragraph, which attributes acetone detection to field GC or natural processes.

Comment No. 12, page 10, Area D

A monitoring well is suggested between P-58 and P-59 just outside the line where benzene was detected, as specified on figure 5. This well will provide coverage of the area between MW-11 and MW-12, which are over 1000 feet apart.

Comment No. 13, page 10, Area D

A monitoring well is suggested near P-63 to better define the nature of contamination in this area.

Comment No. 14, page 11, Residential Well Identification and Sampling

The residential wells proposed for sampling are screened in the lower aquifer, and are located south of the site. Given that the gradient of the lower aquifer is northerly, these wells are less likely to be affected by the site than wells located downgradient (north) of the site. Residential and industrial wells located north of the site should be identified and sampled.

Comment No. 15, page 11, Surface Water Sampling

The surface water sample appears to have been collected near P-63, rather than P-61. Include the sampling location and ditch on figure 2. Results, conclusions, and recommendations for the surface water sample location should be included.

Comment No. 16, Appendix B

The time-series data for IW-1 indicates that tetrachloroethene (PCE) concentrations dropped from approximately 10 to 12 ug/l near the start of the pumping and leveled off at about 5ug/l after 180. In reporting this data, it is not accurate to state that the time series data indicated that PCE concentrations at the well began high and then over time dropped to zero. Rather it appears that PCE concentrations from 180 to the end of the test (i.e., 480 minutes) leveled off at a concentration of approximately 5 ug/L.

General Comment No. 1

P-57, as indicated in the Montgomery Watson technical memorandum dated November 8, should be installed.

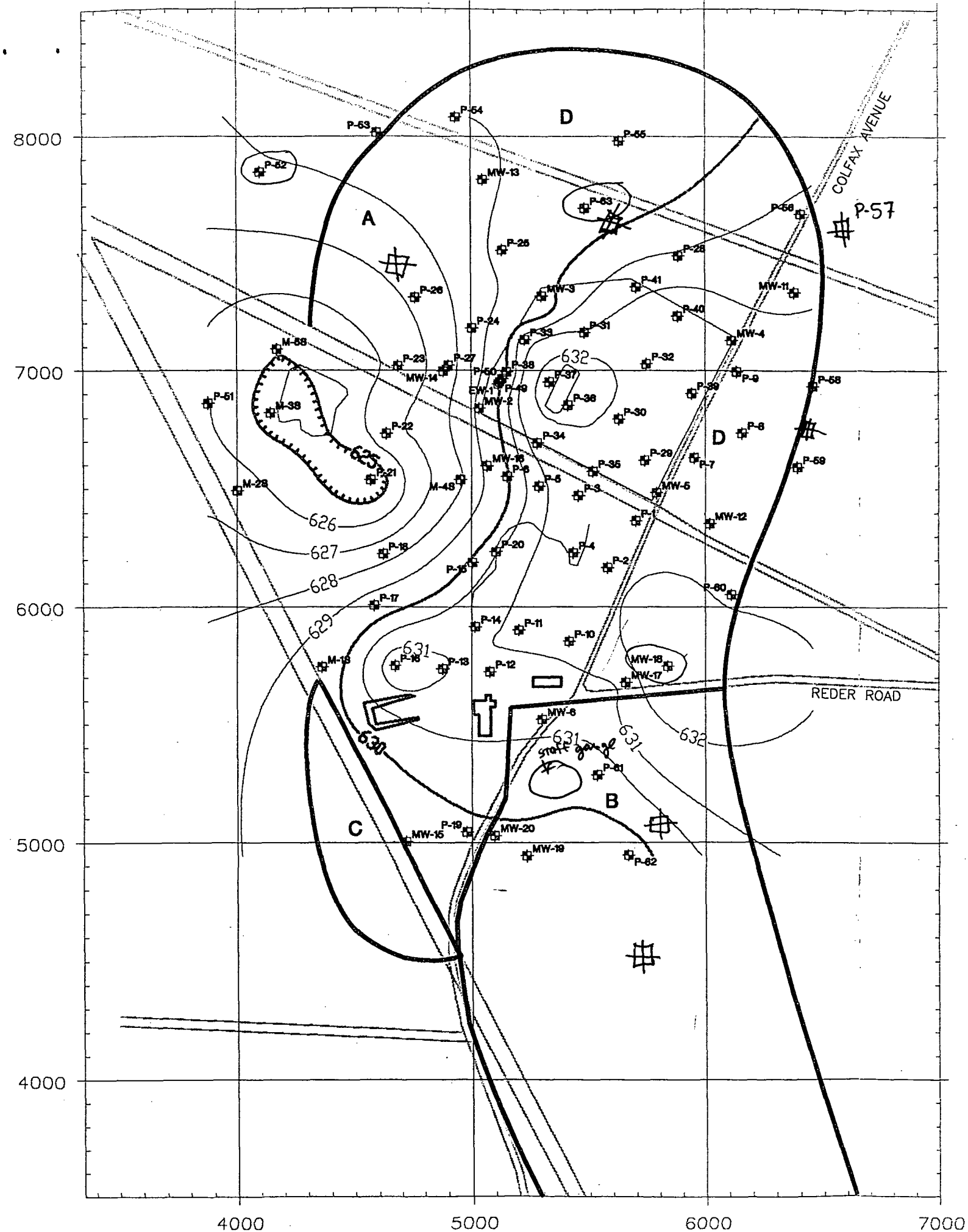
General Comment No. 2

A staff gauge should be installed in the retention pond south of Colfax Avenue and Reder Road, as verbally proposed by Montgomery Watson.

General Comment No. 3

With the included modifications, the general locations of the monitoring wells are acceptable. However, final locations will be verified by USEPA and IDEM in the field.

Management Review
Other
Technical Review
Manager
Prc
QA/QC Lead Professional
QA/QC Graphic Standards
QA/QC Lead Professional
This drawing has been developed without the application and may not be used without the written approval of Montgomery Watson.



LEGEND

- A** LOCATION OF INVESTIGATION AREAS - SEE TEXT FOR FURTHER DESCRIPTION
- MW-12** UPPER AQUIFER WELL LOCATION AND NUMBER
- M-18** LEACHATE/UPPER AQUIFER WELL LOCATION AND NUMBER
- P-61** PIEZOMETER LOCATION AND NUMBER
- 626** GROUNDWATER ELEVATION CONTOUR

LEGEND

1. GROUNDWATER ELEVATION WAS MEASURED AT THE SITE ON OCTOBER 30, 1995.

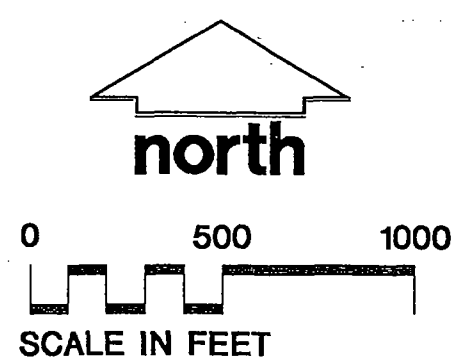


FIGURE 1

UPPER AQUIFER SAMPLING AREAS	
Developed By	PV
Drawn By	CCM
Approved By	
Reference	
Revisions	
Drawing Number 4077.0072 B1	
MONTGOMERY WATSON	